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Approved for use through 09/30/2000. OMB 0651-0032
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**UTILITY
PATENT APPLICATION
TRANSMITTAL**

(Only for new nonprovisional applications under 37 C.F.R. § 1.53(b))

Attorney Docket No. _____

First Inventor or Application Identifier **RIDHA RADHOVANE**

Title **Auto Adjustment Video Projector**

Express Mail Label No. _____

APPLICATION ELEMENTS

See MPEP chapter 600 concerning utility patent application contents.

1. * Fee Transmittal Form (e.g., PTO/SB/17)
(Submit an original and a duplicate for fee processing)
2. Specification [Total Pages **6**]
(preferred arrangement set forth below)
 - Descriptive title of the Invention
 - Cross References to Related Applications
 - Statement Regarding Fed sponsored R & D
 - Reference to Microfiche Appendix
 - Background of the Invention
 - Brief Summary of the Invention
 - Brief Description of the Drawings (if filed)
 - Detailed Description
 - Claim(s)
 - Abstract of the Disclosure
3. Drawing(s) (35 U.S.C. 113) [Total Sheets **1**]
4. Oath or Declaration [Total Pages **2**]
 - a. Newly executed (original or copy)
 - b. Copy from a prior application (37 C.F.R. § 1.63(d))
(for continuation/divisional with Box 16 completed)
 - i. DELETION OF INVENTOR(S)
Signed statement attached deleting
inventor(s) named in the prior application,
see 37 C.F.R. §§ 1.63(d)(2) and 1.33(b).

*NOTE FOR ITEMS 1 & 13: IN ORDER TO BE ENTITLED TO PAY SMALL ENTITY FEES, A SMALL ENTITY STATEMENT IS REQUIRED (37 C.F.R. § 1.27), EXCEPT IF ONE FILED IN A PRIOR APPLICATION IS RELIED UPON (37 C.F.R. § 1.28).

ADDRESS TO: Assistant Commissioner for Patents
Box Patent Application
Washington, DC 20231

5. Microfiche Computer Program (Appendix)
6. Nucleotide and/or Amino Acid Sequence Submission
(if applicable, all necessary)
 - a. Computer Readable Copy
 - b. Paper Copy (identical to computer copy)
 - c. Statement verifying identity of above copies

ACCOMPANYING APPLICATION PARTS

7. Assignment Papers (cover sheet & document(s))
8. 37 C.F.R. § 3.73(b) Statement Power of
(when there is an assignee) Attorney
9. English Translation Document (if applicable)
10. Information Disclosure Statement (IDS)/PTO-1449 Copies of IDS
Statement (IDS)/PTO-1449 Citations
11. Preliminary Amendment
12. Return Receipt Postcard (MPEP 503)
(Should be specifically itemized)
13. * Small Entity Statement filed in prior application,
(PTO/SB/09-12) Status still proper and desired
14. Certified Copy of Priority Document(s)
(if foreign priority is claimed)
15. Other: _____

16. If a CONTINUING APPLICATION, check appropriate box, and supply the requisite information below and in a preliminary amendment:

Continuation Divisional Continuation-in-part (CIP) of prior application No. _____

Prior application information. Examiner _____ Group / Art Unit. _____

For CONTINUATION or DIVISIONAL APPS only: The entire disclosure of the prior application, from which an oath or declaration is supplied under Box 4b, is considered a part of the disclosure of the accompanying continuation or divisional application and is hereby incorporated by reference. The incorporation can only be relied upon when a portion has been inadvertently omitted from the submitted application parts.

17. CORRESPONDENCE ADDRESS

Customer Number or Bar Code Label _____ or Correspondence address below
(Insert Customer No. or Attach bar code label here.)

Name	RIDHA RADHOVANE			
Address	6415 MONTEGO CT			
City	SAN JOSE	State	CA	Zip Code
Country	USA	Telephone	+33 6 10 49 72 31	Fax

Name (Print/Type)	RIDHA RADHOVANE	Registration No. (Attorney/Agent)
Signature		
	Date	09/15/2000

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FEE TRANSMITTAL

for FY 2000

Patent fees are subject to annual revision.

Small Entity payments *must* be supported by a small entity statement, otherwise large entity fees must be paid. See Forms PTO/SB/09-12. See 37 C.F.R. §§ 1.27 and 1.28.

TOTAL AMOUNT OF PAYMENT (\$ 2,134)

Complete if Known

Application Number	
Filing Date	
First Named Inventor	RIDHA RADHOVANE
Examiner Name	
Group / Art Unit	
Attorney Docket No.	

METHOD OF PAYMENT (check one)

1. The Commissioner is hereby authorized to charge indicated fees and credit any overpayments to:Deposit Account Number Deposit Account Name Charge Any Additional Fee Required
Under 37 CFR §§ 1.16 and 1.172. Payment Enclosed: Check Money Order Other

FEE CALCULATION (continued)

3. ADDITIONAL FEES

Large Entity Fee Code (\$)	Small Entity Fee Code (\$)	Fee	Fee	Fee	Fee Description	Fee Paid
105 130	205 65	Surcharge - late filing fee or oath				
127 50	227 25	Surcharge - late provisional filing fee or cover sheet				
139 130	139 130	Non-English specification				
147 2,520	147 2,520	For filing a request for reexamination				
112 920*	112 920*	Requesting publication of SIR prior to Examiner action				
113 1,840*	113 1,840*	Requesting publication of SIR after Examiner action				
115 110	215 55	Extension for reply within first month				
116 380	216 190	Extension for reply within second month				
117 870	217 435	Extension for reply within third month				
118 1,360	218 680	Extension for reply within fourth month				
128 1,850	228 925	Extension for reply within fifth month				
119 300	219 150	Notice of Appeal				
120 300	220 150	Filing a brief in support of an appeal				
121 260	221 130	Request for oral hearing				
138 1,510	138 1,510	Petition to institute a public use proceeding				
140 110	240 55	Petition to revive - unavoidable				
141 1,210	241 605	Petition to revive - unintentional				
142 1,210	242 605	Utility issue fee (or reissue)			1,210	
143 430	243 215	Design issue fee				
144 580	244 290	Plant issue fee				
122 130	122 130	Petitions to the Commissioner				
123 50	123 50	Petitions related to provisional applications				
126 240	126 240	Submission of Information Disclosure Stmt				
581 40	581 40	Recording each patent assignment per property (times number of properties)				
146 690	246 345	Filing a submission after final rejection (37 CFR § 1.129(a))				
149 690	249 345	For each additional invention to be examined (37 CFR § 1.129(b))				
Other fee (specify)						
Other fee (specify)						
SUBTOTAL (2) (\$ 234)					SUBTOTAL (3) (\$ 1,210)	

SUBMITTED BY

Name (Print/Type)	RIDHA RADHOVANE	Registration No. (Attorney/Agent)		Telephone	733610497231
Signature				Date	09/15/2000

WARNING:

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APPLICANT

Name : Ridha Radhouane

Citizenship : Tunisian

Residence : 6415 Montego CT, San Jose 95120, CA-USA.

TITLE OF THE INVENTION

Auto Adjustment Video Projector (AAVP)

CROSS-REFERENCES TO RELATED APPLICATIONS

This application claims the benefits of provisional patent application No 60/158,060, filed October 7, 1999 entitled “Picture to Picture Pointer, White Shadow and Auto Adjustment Projector”.

STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT

“Not applicable”

REFERENCE TO A MICROFICHE APPENDIX

“Not applicable”

BACKGROUND OF THE INVENTION

1-Field of the Invention:

The present invention relates to video projector technologies.

2-Description of the related art:

Before using a video projector, it is necessary to set its focus, lightness, contrast and color saturation. These settings are made easy when the projection

room and screen are designed adequately. When the video projector and the screen are fixed, these adjustments are usually made once (at the installation).

With portable video projectors, projection conditions (room darkness, quality of the projection screen, projection distance,...) may vary from a presentation to another. The user has to adjust his device (the projector) in order to optimize the projection quality: he has to set the focus according to the available projection distance and the screen size and he has to adjust the brightness, the contrast and the color saturation depending on the projection room and screen.

The disadvantage of portable video projectors is the necessity of the setting phase prior to every new projection, when the projection conditions are changed.

BRIEF SUMMARY OF THE INVENTION

The principal of this invention is to make the video projector adjustments (focus, brightness, contrast and color saturation) automated. The video projector will be able to detect the projection conditions (distance to the screen, screen quality, room darkness,...) and to set the optimal setting parameters in order to allow the best quality of projection in those conditions.

The projection conditions will be quantified by the mean of a detecting device (CCD camera for example) integrated to the video projector.

BRIEF DESCRIPTION OF DRAWINGS

FIG.1 illustrates the principle of the Auto-Adjustment Video Projector: a capture device (CCD camera) allows to read the projection screen conditions in order to set automatically the projector.

DETAILED DESCRIPTION OF THE INVENTION

Video projector will be equipped with a video camera that shoots back the projection screen (during an initialization phase). The video image of the screen will be interpreted to extract the informations describing the screen conditions, the projection distance and the room conditions (darkness and noise light).

These condition informations will be used to set the different adjustment parameters (focus, brightness, contrast and color saturation):

Auto focus:

In addition to the capture system (CCD video camera), the video projector will be equipped by a motorized projection lens. The auto focus system (Hardware system integrated to the video projector) controls the motorized projection lens in order to obtain the best possible setting. A feed back loop composed by the capture device (CCD camera), the auto-focus Hardware and the motorized projection lens operates to converge to the optimal focus value.

The projector sends to the projection screen a sequence of test signals (lines, circles, or others...). The capture device (CCD camera) reads back these test signals and sends their video signal to the auto focus system to process them and command the motorized projection lens accordingly. The best focus setting is obtained when the projected image (of test signals) is closer to the received screen (received by the capture device : CCD camera).

Auto-Brightness:

The capture device in the video projector scans the projection screen and analyses its reflection characteristics in order to set the right brightness. Also the

ambient noise light (the room light) is measured and involved in the computation of the brightness parameters. The control of the brightness can be made pixel by pixel. Psycho visual considerations are involved in the algorithm.

Auto-contrast:

The captured screen informations are used to determine the optimum contrast value to apply so that the viewers get the finest quality of projection for any particular conditions. The control of the contrast can be made pixel by pixel.

Auto-color saturation:

The projection screen may not be always perfectly neutral: some parasite colored reflections (colored windows or door glass, reflection on colored wall...) can give the screen a tint of some color. The presentation will be affected and the screen stain will distress the audience. Although the human eyes restore this effect (after the beginning of the presentation), it is still worthwhile to recover the screen from the video projector by neutralizing the noise lights on it. This will release the viewer eyes and make them more comfortable. The control of the color saturation is made pixel by pixel.

CLAIMS

- 1- A method to make the video projector settings (focus, Brightness, contrast, color saturation and others ...) automated.
- 2- A method that uses a capture device (CCD camera for example) to set automatically the video projector adjustments.

3. A method, where a camera integrated to the video projector shoots back the video projection screen and where the video signal from this camera is used as well for any function other than the auto-adjustment function.

4. A method as recited in claims 1 and 2, to be used in portable or fix video projectors.

5. A method as recited in claims 1 and 2, to be used with all video projection technologies.

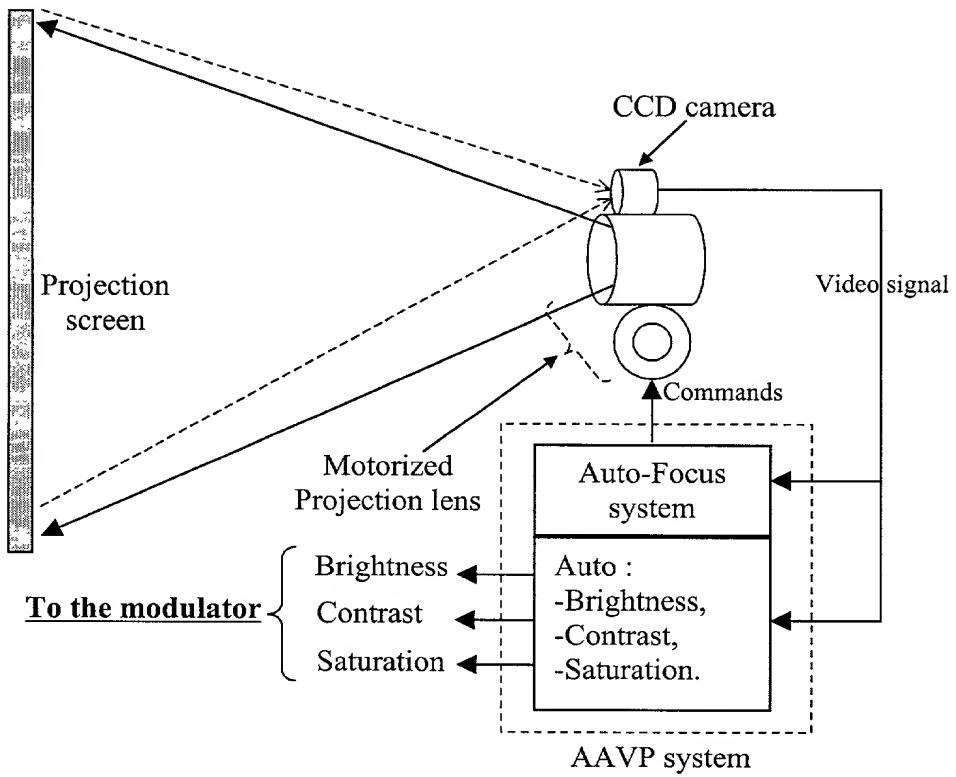
6. A method, where any sensor or detector (other than a video camera) integrated to the video projector is used to read back the projection screen or the space between the screen and the projector.

7. A method of scanning the projection screen or the space between the projector and the screen by using a video camera (or any sensor or detector) in order to process the projected video signal or to extract informations from the projection screen scene.

ABSTRACT OF THE DISCLOSURE

The present invention allows setting video projectors (Focus, Brightness, Contrast, Color saturation ...) automatically. It is based on the analysis of the projection screen conditions obtained from the screen image captured by an integrated video camera in the video projector.

FIG. 1



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PTO/SB/01 (12-97)

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**DECLARATION FOR UTILITY OR
DESIGN
PATENT APPLICATION
(37 CFR 1.63)**

Declaration Submitted with Initial Filing Declaration Submitted after Initial Filing (surcharge (37 CFR 1.16 (e)) required)

Attorney Docket Number	
First Named Inventor	RIDHA RADHOUANE
COMPLETE IF KNOWN	
Application Number	/
Filing Date	
Group Art Unit	
Examiner Name	

As a below named inventor, I hereby declare that:

My residence, post office address, and citizenship are as stated below next to my name.

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled:

Auto Adjustment Video Projector

the specification of which

(Title of the Invention)

is attached hereto

OR

was filed on (MM/DD/YYYY) as United States Application Number or PCT International

Application Number and was amended on (MM/DD/YYYY) (if applicable).

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment specifically referred to above.

I acknowledge the duty to disclose information which is material to patentability as defined in 37 CFR 1.56.

I hereby claim foreign priority benefits under 35 U.S.C. 119(a)-(d) or 365(b) of any foreign application(s) for patent or inventor's certificate, or 365(a) of any PCT international application which designated at least one country other than the United States of America, listed below and have also identified below, by checking the box, any foreign application for patent or inventor's certificate, or of any PCT international application having a filing date before that of the application on which priority is claimed.

Prior Foreign Application Number(s)	Country	Foreign Filing Date (MM/DD/YYYY)	Priority Not Claimed	Certified Copy Attached?	
			<input type="checkbox"/>	<input type="checkbox"/> YES	<input type="checkbox"/> NO
			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Additional foreign application numbers are listed on a supplemental priority data sheet PTO/SB/02B attached hereto:

I hereby claim the benefit under 35 U.S.C. 119(e) of any United States provisional application(s) listed below.

Application Number(s)	Filing Date (MM/DD/YYYY)	
60/158,060	10/07/1999	<input type="checkbox"/> Additional provisional application numbers are listed on a supplemental priority data sheet PTO/SB/02B attached hereto.

[Page 1 of 2]

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DECLARATION — Utility or Design Patent Application

I hereby claim the benefit under 35 U.S.C. 120 of any United States application(s), or 365(c) of any PCT International application designating the United States of America, listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States or PCT International application in the manner provided by the first paragraph of 35 U.S.C. 112, I acknowledge the duty to disclose information which is material to patentability as defined in 37 CFR 1.56 which became available between the filing date of the prior application and the national or PCT International filing date of this application.

U.S. Parent Application or PCT Parent Number	Parent Filing Date (MM/DD/YYYY)	Parent Patent Number (if applicable)

Additional U.S. or PCT international application numbers are listed on a supplemental priority data sheet PTO/SB/02B attached hereto.

As a named Inventor, I hereby appoint the following registered practitioner(s) to prosecute this application and to transact all business in the Patent and Trademark Office connected therewith: Customer Number Place Customer Number Bar Code Label here
 OR
 Registered practitioner(s) name/registration number listed below

Name	Registration Number	Name	Registration Number

Additional registered practitioner(s) named on supplemental Registered Practitioner Information sheet PTO/SB/02C attached hereto.

Direct all correspondence to: Customer Number or Bar Code Label OR Correspondence address below

Name	RIDHA RADHOUANE				
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Address					
City	SAN JOSE	State	CA	ZIP	95120
Country	USA	Telephone	+33610497231	Fax	-

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under 18 U.S.C. 1001 and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

A petition has been filed for this unsigned inventor

Name of Sole or First Inventor:						
Given Name (first and middle if any)		Family Name or Surname				
Inventor's Signature	RIDHA					RADHOUANE
Residence: City	SAN JOSE	State	CA	Country	USA	Citizenship
Post Office Address	6415 MONTREGO CT.					TUNISIAN
Post Office Address						
City		State		ZIP		Country
<input type="checkbox"/> Additional inventors are being named on the _____ supplemental Additional Inventor(s) sheet(s) PTO/SB/02A attached hereto						